# THE NATIONAL WILDLIFE RESEARCH CENTER'S GREAT PLAINS FIELD STATION

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## Introduction

In 1989, the Great Plains Field Station was established in North Dakota by the National Wildlife Research Center, Fort Collins, Colorado. Under the National Blackbird Management Research Plan, the Great Plains Field Station conducts research to alleviate and solve conflicts between agriculture and blackbirds. Station personnel, consisting of two Wildlife Biologists (Station Leader and Assistant Station Leader) and one Program Support Assistant work closely with the Departments of Zoology and Plant Sciences at North Dakota State University (NDSU), the Wildlife and Fisheries Department at South Dakota State University, and cooperators from other interested agencies, including state departments of agriculture, ornithological societies, the U.S. Fish & Wildlife Service, and the USDA/Wildlife Services program.

Numerous conflicts arise between agricultural producers and blackbirds and thereby involve the Great Plains Field Station. For example, producers of sunflower, corn, and rice report annual million-dollar losses because of foraging blackbirds aggregating in their fields; poultry producers and feedlot operators lose livestock food supplies or have them contaminated by blackbirds; and finally, in urban areas large flocks of roosting blackbirds create a nuisance and cause health problems to humans. Most complaints involve one or more of the following species: European starling, yellow-headed blackbird, red-winged blackbird, and common grackle. The research conducted by the Great Plains Field Station on behavior, ecology, and population dynamics of these species has been essential in developing effective biological, chemical, mechanical, and electronic methods to reduce losses and impacts from blackbirds.

## Research Accomplishments

Through a cooperative agreement between the National Wildlife Research Center (NWRC) and North Dakota State University (NDSU), the Great Plains Field Station supports original and innovative graduate research on blackbirds and issues related to their control. Funding began in 1979, and since then has supported several successful Ph.D. and M.S. projects focusing on blackbird feeding behavior, molt, nest-site selection, and roost-site selection. The bulk of recent graduate research has concentrated on the effects of blackbird control on 'nontarget' species.

Crucial information on blackbird ecology and damage-control techniques has been generated through graduate research at NDSU's Department of Zoology. For example, investigations into the feeding behavior of blackbirds showed that male red-winged blackbirds and yellow-headed blackbirds ate

more sunflower than did their female counterparts; whereas, male and females of the other major blackbird species, common grackles, consumed comparable amounts of sunflower. Other research on the fall feeding habits of blackbirds indicated that yellow-headed blackbirds damage less sunflower than either red-winged blackbirds or common grackles. Molt studies on red-winged blackbirds and yellow-headed blackbirds showed that the peak period of sunflower damage (mid August - mid September) coincided with the heaviest molt, which causes birds to become basically sedentary. The investigators concluded that harassment by airplanes was probably an ineffective technique for moving blackbirds out of sunflower-growing areas during the molting period. Molting birds may be further inured to aerial harassment because oil-rich sunflower provides an attractive source of nutrients for both feather growth and premigratory fattening. In another graduate research project conducted at NDSU, the colony-site characteristics of common grackles were measured. Common grackles preferred to nest in farmstead vegetation with dense branch structure, such as blue spruce, Siberian elm, and poplar.

Great Plains Field Station scientists, with help from graduate students at NDSU, assessed the effects of aquatic herbicide (Rodeo®) to stop the formation of large blackbird flocks in dense stands of cattail. Many ecological benefits resulted from using Rodeo® to restore wetlands to a 70:30 ratio of open water to vegetation, including increased use by waterfowl and black terns and decreased use by red-winged blackbirds. In addition to being used by the USDA to help sunflower growers reduce the damage caused by blackbirds, Rodeo® has been used by the U.S. Fish & Wildlife Service; the South Dakota Game, Fish & Parks Department; and North Dakota Game & Fish Department to manage >14,500 ha of overgrown wetlands between 1991 and 1998. In 1999, personnel at the Great Plains Field Station will start large-scale field experiments designed to reduce the costs of Rodeo® applications. Lastly, NWRC has also worked cooperatively with NDSU's Department of Plant Sciences, helping to develop bird-resistant sunflower for release to private seed companies. Laboratory and field studies initiated by Great Plains Field Station personnel and NDSU graduate students were instrumental in identifying and incorporating bird-resistant traits into this sunflower strain.

The dynamics of blackbird population growth in North Dakota have been analyzed by researchers of NWRC and the Great Plains Field Station for numerous years. From this work, a more precise method of estimating breeding blackbirds populations developed. Results from population surveys conducted over the last 20 years in North Dakota revealed that red-winged blackbirds declined, yellow-headed blackbirds were stable, and common grackles increased.

Baiting areas in South Dakota, used for studies on the efficacy and hazards of DRC-1339 avicide, were selected based on early work by NWRC personnel that clarified the timing and routes of migrating blackbirds in the Central Flyway. Great Plains Field Station personnel and graduate students, with the able assistance of temporary summer employees from NDSU, have now reached the final stages of research on DRC-1339 that began in 1994. Operational use of DRC-1339 to reduce blackbird populations, a long-standing request of the sunflower industry and the Wildlife Services Program, will begin in the year 2000.

All of these research projects, past and present, have led to an increased understanding of the role of blackbirds in damaging grain crops, especially sunflower, and form the foundation on which damage-abatement methods will be developed in the future by NWRC's Great Plains Field Station.